

Appl. No.: 09/857,635
Group Art Unit: 1712
Response to Paper No. 8

In the Claims:

Please amend claims 11 & 21, cancel claims 16 & 28 and add new claim 33, without prejudice, as shown below in the following complete listing of all claims ever presented. This listing of claims replaces all prior versions, and listings, of the claims in the instant application:

Claims 1-10 (Canceled)

Claim 11 (Currently amended): A composition comprising:

- (a) an aqueous silica sol, wherein the composition contains SiO₂ in an amount of from 2 to 40% by weight based upon the weight of the composition; and
- (b) from 0.01 to 400 ppm of a hardness stabilizer selected from the group consisting of aminotris(methylenephosphonic acid), 1-hydroxyethane-1,1-diphosphonic acid, phosphonobutane tricarboxylic acid, polyacrylic acid, inorganic polyphosphates, phosphonic acids, aminoethylene phosphonic acids, phosphoric acid esters, phosphonocarboxylic acids, polycarboxylics, and mixtures thereof.

Claim 12 (Previously presented): The composition according to claim 11, wherein the aqueous silica sol comprises amorphous silica having an average particle size of from 1 to 150 nm and a specific surface value of from 50 to 700 m²/g.

Claim 13 (Previously presented): The composition according to claim 11, wherein the aqueous silica sol comprises amorphous silica having an average particle size of from 5 to 70 nm and a specific surface value of from 50 to 700 m²/g.

Claim 14 (Previously presented): The composition according to claim 11, wherein the aqueous silica sol comprises amorphous silica particles having surface-stabilizing hydroxyl groups.

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Claim 15 (Previously presented): The composition according to claim 12, wherein the aqueous silica sol comprises amorphous silica particles having surface-stabilizing hydroxyl groups.

Claim 16 (Canceled).

Claim 17 (Previously presented): The composition according to claim 11, wherein the hardness stabilizer is present in an amount of from 0.1 to 200 ppm.

Claim 18 (Previously presented): The composition according to claim 11, wherein the hardness stabilizer is present in an amount of from 1 to 100 ppm.

Claim 19 (Previously presented): The composition according to claim 12, wherein the hardness stabilizer is selected from the group consisting of aminotris(methylenephosphonic acid), 1-hydroxyethane-1,1-diphosphonic acid, phosphonobutane tricarboxylic acid, polyacrylic acid and mixtures thereof.

Claim 20 (Previously presented): The composition according to claim 12, wherein the hardness stabilizer is present in an amount of from 0.1 to 200 ppm.

Claim 21 (Currently amended): A method of sealing and/or consolidating loose and/or permeable materials, said method comprising:

- (a) providing a material to be treated selected from the group consisting of rocks, mantle rock, soils, and mixtures thereof;
- (b) contacting the material with an aqueous silica sol; and
- (c) contacting the material with a hardness stabilizer selected from the group consisting of inorganic polyphosphates, phosphonic acids, aminoethylene phosphonic

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acids, phosphoric acid esters, phosphonocarboxylic acids, polycarboxylics, and mixtures thereof, wherein the hardness stabilizer is present in the composition in an amount of from 0.01 to 400 ppm.

Claim 22 (Previously presented): The method according to claim 21, wherein the material is contacted with the aqueous silica sol and the hardness stabilizer simultaneously in the form of a water-based composition comprising both the aqueous silica sol and the hardness stabilizer.

Claim 23 (Previously presented): The method according to claim 21, wherein the material is contacted with the aqueous silica sol, and subsequently contacted with the hardness stabilizer by adding the hardness stabilizer to the aqueous silica sol.

Claim 24 (Previously presented): The method according to claim 21, wherein the aqueous silica sol comprises amorphous silica having an average particle size of from 1 to 150 nm and a specific surface value of from 50 to 700 m²/g.

Claim 25 (Previously presented): The method according to claim 21, wherein the aqueous silica sol comprises amorphous silica having an average particle size of from 5 to 70 nm and a specific surface value of from 50 to 700 m²/g.

Claim 26 (Previously presented): The method according to claim 21, wherein the aqueous silica sol comprises amorphous silica particles having surface-stabilizing hydroxyl groups.

Claim 27 (Previously presented): The method according to claim 21, wherein the hardness stabilizer is selected from the group consisting of aminotris(methylenephosphonic

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acid), 1-hydroxyethane-1,1-diphosphonic acid, phosphonobutane tricarboxylic acid, polyacrylic acid and mixtures thereof.

Claim 28 (Canceled).

Claim 29 (Previously presented): The method according to claim 23, wherein the hardness stabilizer is added to the aqueous silica sol such that the hardness stabilizer is present in the sol in an amount of from 0.01 to 400 ppm.

Claim 30 (Previously presented): The method according to claim 22, wherein the hardness stabilizer is present in the composition in an amount of from 0.1 to 200 ppm.

Claim 31 (Previously presented): The method according to claim 23, wherein the hardness stabilizer is added to the aqueous silica sol such that the hardness stabilizer is present in the sol in an amount of from 0.1 to 200 ppm.

Claim 32 (Previously presented): A method of sealing and/or consolidating loose and/or permeable materials, said method comprising:

(a) providing a material to be treated selected from the group consisting of rocks, mantle rock, soils, and mixtures thereof, wherein the material is in contact with water containing Ca^{2+} ions; and

(b) contacting the material with a composition comprising: (i) an aqueous silica sol, wherein the composition contains SiO_2 in an amount of from 2 to 40% by weight based upon the weight of the composition; and (ii) from 0.1 to 200 ppm of a hardness stabilizer selected from the group consisting of aminotris(methylenephosphonic acid), 1-hydroxyethane-1,1-diphosphonic acid, phosphonobutane tricarboxylic acid, polyacrylic acid and mixtures thereof.

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Claim 33 (New): A method of sealing and/or consolidating loose and/or permeable materials, said method comprising:

(a) providing a material to be treated selected from the group consisting of rocks, mantle rock, soils, and mixtures thereof;

(b) contacting the material with an aqueous silica sol; and

(c) contacting the material with a hardness stabilizer selected from the group consisting of aminotris(methylenephosphonic acid), 1-hydroxyethane-1,1-diphosphonic acid, phosphonobutane tricarboxylic acid, polyacrylic acid, and mixtures thereof.